

REMARKS

Claims 1 – 27 were pending in the application. Claims 5, 12, 18 and 25 have been canceled. Claims 1-2, 6-9, 13-15, 19-22, and 26-27 have been amended. Claims 1-4, 6-11, 13-17, 19-24, and 26-27 accordingly remain pending.

Applicant has amended the title as suggested by the Examiner.

In response to the Examiner's objection to the Declaration, Applicant notes that while Inventor Vlaovic's city and state of residence were omitted from the separately provided line in the Declaration, Vloovic's city and state of residence are included in the "Post Office and Residence Address" line of the Declaration; therefore, no supplemental Declaration is believed necessary. Nevertheless, Applicant has submitted an Application Data Sheet concurrently herewith including inventor Vlaovic's city and state of residence.

Claims 1 – 8, 12 – 20 and 25 – 27 stood rejected under U.S.C. 103(a) as being unpatentable over Loh in view of McFarling. Claims 9-11 and 22-24 stood rejected under U.S.C. 103(a) as being unpatentable over Loh in view of McFarling, further in view of Yeh et al. While Applicant respectfully traverses these rejections, Applicant has nevertheless cancelled Claims 12 and 25, and has amended claims 1, 14 and 27.

In rejecting claims 1, 14 and 27, the Examiner asserts that Loh teaches a first storage and a second storage (elements 405) and that "the global history could be used to index the predictors." Applicant can find no such teaching in Loh. Applicant notes that Loh does not provide any specific detail with regard to the structure of elements 405. Loh simply discloses that prediction history information may be accessed in segments by intermediate branch prediction units 405 and that a number of intermediate branch predictions are performed off the branch prediction segments (see paragraph 0018, lines 9-11 and paragraph 0022, lines 4-6). In addition, Applicant respectfully disagrees with the Examiner's assertion that Loh discloses at Fig 4, element 410; paragraph 00020, lines 3-7 a control unit providing a prediction value "based on corresponding partial prediction information in said selected location of said first and said second storages." Loh does not disclose the generation of

“a first index for accessing a selected location within said first storage” and the generation of “a second index for accessing a selected location within said second storage,” as recited in claim 1.

Claims 1, 14 and 27 have nevertheless been amended to recite “wherein said input branch information includes address information corresponding to a fetch address of a current branch instruction” and updating “said selected locations of said first and said second storages dependent on whether said prediction value yields an accurate branch prediction.” Applicant notes that each of these additional features is also not disclosed by Loh.

The Examiner acknowledges that Loh does not teach performing “a first hash function on input branch information to generate a first index for accessing a selected location within said first storage” and performing “a second hash function on said input branch information to generate a second index for accessing a selected location within said second storage” as recited in claim 1. The Examiner asserts, however, that in view of the hash function as disclosed by McFarling, original claims 1, 14 and 27 would be rendered obvious. Applicant respectfully disagrees. In particular, Applicant notes that McFarling teaches at paragraph 0026, lines 10-13 applying a hash function (e.g., XOR) on the branch instruction address and the global history register. In contrast to the Examiner’s assertion, McFarling does not disclose “**performing a first hash function** on input branch information to generate a first index for accessing a selected location within said first storage and **performing a second hash function** on said input branch information to generate a second index for accessing a selected location within said second storage.”

In view of the above, Applicant respectfully submits that the Examiner has not established a *prima facia* showing of obviousness with regard to independent claims 1, 14 and 27. Withdrawal of the rejection is accordingly requested.

In addition, Applicant respectfully disagrees with many of the Examiner’s assertions with regard to dependent claims 2-13 and 15-26. For example, with regard to

claims 8 and 11, the Examiner asserts that Loh discloses "using multiple values of saturating counters (typically ranging between the value of 0-3 as common at the time) and performing an action on said counters to derive a final prediction. Applicant can find absolutely no teaching of this feature in Loh. Applicant accordingly disagrees that it would not be obvious to generate "said prediction value...by summing respective counter values stored within said selected location within said first storage and said selected location within said second storage" as recited in claims 8 and 11.

With regard to amended claims 6 and 19, Applicant notes that neither Loh nor McFarling disclose or suggest "wherein each of said first hash function and said second hash function is configured to operate on a **different subset of bits of said fetch address.**"

In light of the foregoing amendments and remarks, Applicants submit that all pending claims are in condition for allowance, and an early notice to that effect is earnestly solicited. If a phone interview would speed allowance of any pending claims, such is requested at the Examiner's convenience.

If any required fees are missing, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel, P.C. Deposit Account No. 501505/5181-96100/BNK.

Respectfully submitted,



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